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IS 9008 (1978): Core repairing paste for use in foundries
[MTD 14: Foundry]



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Indian Standard
SPECIFICATION FOR
CORE REPAIRING PASTE FOR USE
IN FOUNDRIES

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SPECIFICATION FOR CORE REPAIRING PASTE FOR USE IN FOUNDRIES

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Indian Standard

SPECIFICATION FOR CORE REPAIRING PASTE FOR USE IN FOUNDRIES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 18 December 1978, after the draft finalized by the Foundry Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 In a foundry, cores produced by the different methods (for example, oil sand, no bake, CO₂, shell, hot box, etc) often require minor surface repairs of production defects like porosity, cracks, chipped off areas, etc. Some core assemblies are also required to be sealed to prevent undesirable metal leakage. The paste to be used for this purpose has to be properly chosen to avoid generation of casting defects due to its use. The paste should set to a hard refractory mass on drying without cracking or peeling off and should withstand metal flow without being dislodged. Its gas content should be low, in no case more than the core gas content.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements for core repairing paste for use in foundries.

2. SUPPLY OF MATERIAL

2.1 General requirements relating to supply of core repairing paste for use in foundries shall be as laid down in IS : 1387-1967†.

*Rules for rounding off numerical values (*revised*).

†General requirements for the supply of metallurgical materials (*first revision*).

3. MANUFACTURE

3.1 The core repairing paste shall be manufactured by thoroughly mulling base materials (refractory clays like china clay, plastic fire clay, etc) with binders (for example, dextrine, sodium alginate, bentonite, etc) and water to a desired pasty consistency.

4. GRADES

4.1 There shall be two grades of the material, high gas and low gas, depending upon gas content.

5. MOISTURE CONTENT

5.1 Moisture content determined as loss on drying to a constant mass at $110 \pm 5^{\circ}\text{C}$ shall not exceed 35 percent for both grades.

6. CRACKING AND SWELLING

6.1 The material of both grades when tested as specified in Appendix A shall not show any cracking and swelling.

7. GAS CONTENT

7.1 The gas content of the material when tested as specified in IS : 1918-1966* using a specimen dried to constant mass at $110 \pm 5^{\circ}\text{C}$ shall be 35 ml/g, *Max* for low gas grade and 45 ml/g, *Max* for high gas grade.

7.2 Material with lower gas content than specified above may be used as per mutual agreement between the manufacturer and user.

8. SCRATCH HARDNESS

8.1 Scratch hardness when tested as specified in Appendix A shall be 60 minimum.

9. CONSISTENCY

9.1 The consistency (the degree of paste stiffness and feel) of the core repairing paste shall be as agreed to between the manufacturer and user (*see* IS : 2333-1963†).

10. PACKING

10.1 Unless otherwise specified the core repairing paste shall be supplied in air-tight sealed containers of 5 kg capacity.

*Methods of physical tests for foundry sands.

†Specification for plaster of Paris.

11. MARKING

11.1 The containers containing core repairing paste shall be clearly marked with the grade of material; manufacturer's name and/or his trade-mark, if any; lot number; date of manufacture and date of expiry.

11.1.1 The material may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

12. SAMPLING

12.1 Representative samples drawn and the criteria for conformity for various requirements shall be as given in Appendix B.

APPENDIX A

(*Clauses 6.1 and 8.1*)

TEST PROCEDURES FOR CORE REPAIRING PASTE

A-1. SPECIMEN PREPARATION

A-1.1 Cut with a file or otherwise a clean 'V' shaped groove about 10 mm wide and of base angle 45° in any flat surfaced core specimen of about 50 mm length. Fill it up with the test sample of core repairing paste leaving no air gaps. Cut flat with a knife or a straight edge and smoothen the surface.

A-2. DRYING

A-2.1 Dry the above sample in an oven at $220 \pm 10^\circ\text{C}$ for about 30 minutes.

A-3. Observe the surface for swelling with a straight edge and for any cracks and peeling off in the dried core repairing paste.

A-4. Test the scratch hardness of the dried paste with a core scratch hardness tester.

APPENDIX B

(Clause 12.1)

SAMPLING AND CRITERIA FOR CONFORMITY

B-1. LOT

B-1.1 In any consignment, all the containers containing the same grade of material and manufactured under similar conditions shall be grouped together to constitute a lot.

B-1.1.1 Samples shall be taken and tested from each lot for ascertaining the conformity.

B-2. SCALE OF SAMPLING

B-2.1 The number of containers, to be selected, shall be according to col 1 and 2 of Table 1.

TABLE 1 SCALE OF SAMPLING

NO. OF CONTAINERS IN THE LOT (1)	NO. OF CONTAINERS TO BE SELECTED (2)
Up to 50	5
51 „ 100	8
101 „ 300	13
301 „ 500	20
501 and above	32

B-2.2 The containers shall be selected at random. For this purpose, the provisions given in IS : 4905-1968* shall be used.

B-3. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

B-3.1 From each of the selected containers as specified in col 1 and 2 of Table 1, adequate quantity of material shall be taken and mixed thoroughly to form a composite sample.

B-3.1.1 The sample prepared as specified in **B-3.1** shall be used to test moisture, cracking and swelling, gas content, scratch hardness and consistency.

B-3.2 The lot shall be considered as conforming to the specification, if the sample tested for various tests (*see B-3.1.1*) conform to the corresponding requirements.

*Methods for random sampling.

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INDIAN STANDARD S

ON

FOUNDRY

IS :

- 1280-1975 Foundry moulding boxes of steel construction (*second revision*)
- 1305-1967 Graphite for use as foundry facing material (*second revision*)
- 1513-1971 Pattern equipment for foundries (*first revision*)
- 1752-1973 Coal dust for use in cast iron foundry (*second revision*)
- 1811-1961 Methods of sampling foundry sands
- 1918-1966 Methods of physical tests for foundry sands
- 1987-1974 High silica sand for use in foundries (*first revision*)
- 3339-1975 Silica flour for use in foundries (*first revision*)
- 3343-1975 Natural moulding sand for use in foundries (*first revision*)
- 3666-1966 Tests for foundry core oils requiring baking
- 4140-1967 Limestone for use in foundries
- 4269-1967 Dextrin for use in foundries
- 4475-1975 Crane-suspended hand-operated geared ladles for iron foundries (*first revision*)
- 4476-1975 Crane-suspended hand-operated geared ladles for steel foundries (*first revision*)
- 4604-1975 Pattern plates for machine moulding boxes (*first revision*)
- 4606-1968 Steel shot for use in foundries
- 4683-1968 Chilled iron shot and grit for use in foundries
- 4981-1975 Guide pins for foundry pattern plates (*first revision*)
- 4982-1975 Closing pins for foundry moulding boxes (*first revision*)
- 5032-1975 Recommended sizes of cupola furnace for foundry (*first revision*)
- 5303-1974 Zircon flour for use in foundries (*first revision*)
- 5824-1970 Lancets for use in foundries (*first revision*)
- 5841-1970 Fluted core cleaners for use in foundries
- 5850-1970 Star (triangular) cutters for use in foundries
- 5873-1970 Steel cut-wire shots for use in foundries
- 5904-1970 Chaplets for use in foundries
- 5981-1970 Slickers for use in foundries
- 5988-1970 Spring dowel sleeves (light and heavy patterns) for use in foundries
- 6013-1970 Trowels for use in foundries
- 6366-1971 Sprue plugs for use in foundries
- 6376-1971 Pattern lifting pins and hooks for use in foundries
- 6377-1971 Mallets for use in foundries
- 6378-1971 Pattern lifting and rapping plates
- 6401-1971 Dowel pins for use in foundries
- 6443-1971 Lifters and cleaners for use in foundries
- 6447-1971 Vent wires for use in foundries
- 6482-1971 Tampers and rammers for use in foundries
- 6773-1978 Sodium silicate for use in foundries (*first revision*)
- 6788-1973 Chromite sand for use in foundries
- 7295-1974 Chamotte
- 7297-1974 Olivine sand and flour for use in steel foundries
- 7547-1974 Steel nails used as internal chills in steel casting
- 8228-1976 Bauxite sand
- 8246-1976 Liquid resins for use in shell process in foundries
- 8250-1976 Foundry parting agents